REMARKS

The application has been reviewed in light of the final Office Action dated January 24, 2008. Claims 12, 16-21 and 24-27 were pending, with claims 1-13, 13-15, 22 and 23 having previously been canceled, without prejudice or disclaimer. By this Amendment, claims 12, 17-19, 24 and 25 have been canceled, without prejudice or disclaimer, and claim 12 has been amended to clarify the subject matter of the claimed invention, without introducing new matter or new issues. Accordingly, claims 16, 20, 21, 26 and 27 would remain pending upon entry of this Amendment, with claim 16 being in independent form.

Claims 12, 16-21 and 24-27 were rejected under 35 U.S.C. §103(a) as purportedly unpatentable over U.S. Patent No. 4,902,584 to Uchiyama et al. in view of U.S. Patent No. 4,983,505 to Higuchi et al. and further in view of U.S. Patent No. 5,156,693 to Ide. Claims 12, 16, 18-21 and 24-27 were rejected under 35 U.S.C. §103(a) as purportedly unpatentable over Ide in view of U.S. Patent No. 4,920,007 to Sawamura et al..

Applicant has carefully considered the Examiner's comments and the cited art, and respectfully submits that the present application is patentable over the cited art, for at least the following reasons.

Independent claim 12 of the present application relates to an optical phase variation type data recording medium comprising a reflective heat radiation layer, a phase variation type recording layer consisting mainly of Ag, In, Sb and Te, and a first protection layer comprising SiO_2 as the basic material, and a compound having a thermal conductivity greater than or equal to 10 W/m.deg when in a bulk state and comprising one or more of the compounds selected from the group consisting of zinc oxide in a molar ratio with the basic material of 3% to 50% zinc oxide, titanium oxide in a molar ratio with the basic material of 10% to 98% titanium oxide,

magnesium oxide in a molar ratio with the basic material of 3% to 45% magnesium oxide, yttrium oxide in a molar ratio with the basic material of 10% to 80% yttrium oxide, gallium nitride in a molar ratio with the basic material of 1% to 30% gallium nitride, silicon carbide in a molar ratio with the basic material of 5% to 50% silicon carbide, and titanium carbide in a molar ratio with the basic material of 10% to 85% titanium carbide, wherein the first protection layer is configured to have a thermal conductivity matching a light-to-heat conversion efficiency of the phase-variation type recording layer.

It is contended in the final Office Action that the relationship between the thermal conductivity and the light-to-heat conversion efficiency is an inherent property of the utilized materials, and that the same materials are utilized in both the claimed subject matter of the present disclosure and the cited references.

Applicant respectfully points out that the relationship between the thermal conductivity and the light-to-heat conversion efficiency is not solely dependent on the materials utilized, but, instead, is dependent on the composition of the materials utilized.

The cited references fail to disclose or suggest **the same composition of the materials** recited in claim 16 of the present application, and fails to render obvious an optical phase variation type data recording medium including a protection layer configured to have a thermal conductivity matching the light-to-heat conversion efficiency of a phase-variation type recording layer.

In the optical phase variation type data recording medium of the cited art, if the thermal conductivity is excessively high compared to the conversion efficiency, the temperature rises above the melting point of the recording layer, resulting in the need for great laser power which, in turn, lowers the sensitivity of the recording medium to both recording and erasure.

Uchiyama, as understood by applicant, proposes a magneto-optical recording medium comprising a recording layer on a substrate and a protective layer formed adjacent to the upper or lower surface of the recording layer, wherein the protective layer has a composition comprising a divalent metal such as Ba, Ca or Sr, oxygen, and nitrogen. Uchiyama also references JP59-162621 which proposes a protective layer of an inorganic glass based composition, the glass comprising 80 to 90% by weight of SiO_2, 5 to 15% by weight of B_2O_3, 1 to 10% by weight of Al_2O_3, and 1 to 10% by weight of NaO. In the experiments described in Uchiyama, a protective layer composed of SiO_2, Si_3N_4 and AlN of varying weight relationships between the compounds, is described.

Uchiyama does not disclose or suggest (or otherwise render obvious), however, a first protection layer comprising SiO_2 as the basic material, and a compound having a thermal conductivity greater than or equal to 10 W/m.deg when in a bulk state and ***comprising one or more of the compounds selected from the group consisting of zinc oxide in a molar ratio with the basic material of 3% to 50% zinc oxide, titanium oxide in a molar ratio with the basic material of 10% to 98% titanium oxide, magnesium oxide in a molar ratio with the basic material of 3% to 45% magnesium oxide, yttrium oxide in a molar ratio with the basic material of 10% to 80% yttrium oxide, gallium nitride in a molar ratio with the basic material of 1% to 30% gallium nitride, silicon carbide in a molar ratio with the basic material of 5% to 50% silicon carbide, and titanium carbide in a molar ratio with the basic material of 10% to 85% titanium carbide, wherein the first protection layer is configured to have a thermal conductivity matching a light-to-heat conversion efficiency of the phase-variation type recording layer***, as proposed by the subject matter of independent claim 16 of the present application.

Higuchi, as understood by applicant, proposes an optical recording medium comprising a recording layer on a substrate and a first protective layer overlying the recording layer and comprising a UV cured resin composition containing a urethane acrylate (35 to 70 wt %), N-vinylpyrolidone, a trifunctional acrylate (2 to 15 wt %), and a photoinitiator (1 to 5 wt %), and further one or more inorganic protective layers formed of SiO_x, SiN_x, AlN_x and ZnS.

Higuchi, like Uchiyama, does not disclose or suggest (or otherwise render obvious), however, a first protection layer comprising SiO_2 as the basic material, and a compound having a thermal conductivity greater than or equal to 10 W/m.deg when in a bulk state and ***comprising one or more of the compounds selected from the group consisting of zinc oxide in a molar ratio with the basic material of 3% to 50% zinc oxide, titanium oxide in a molar ratio with the basic material of 10% to 98% titanium oxide, magnesium oxide in a molar ratio with the basic material of 3% to 45% magnesium oxide, yttrium oxide in a molar ratio with the basic material of 10% to 80% yttrium oxide, gallium nitride in a molar ratio with the basic material of 1% to 30% gallium nitride, silicon carbide in a molar ratio with the basic material of 5% to 50% silicon carbide, and titanium carbide in a molar ratio with the basic material of 10% to 85% titanium carbide, wherein the first protection layer is configured to have a thermal conductivity matching a light-to-heat conversion efficiency of the phase-variation type recording layer***, as proposed by the subject matter of independent claim 16 of the present application.

Ide, as understood by applicant, proposes an information recording medium which records information through the transition of two phases of a recording material, utilizing electromagnetic wave energy. The information recording medium contains multiple heat resistant protective layers, wherein the material for the heat resistant protective layers includes

one or more of SiO, SiO_2, ZnO, SnO_2, Al_2O_3, TiO_2, In_2O_3, MgO, ZrO_2, Si_3N_4, AlN, TiN, BN, ZrN, ZnS, In_2S_3, TaS_4, and the like; a carbide such as SiC, TaC, B4C, WC, TiC, ZrC, and/or a diamond-type carbon.

However, Ide does not teach or suggest specific molar ratios for the above-mentioned materials for the heat resistant protective layers.

It simply would not have been obvious from Ide or the other references that a protection layer should be configured to have a thermal conductivity matching the light-to-heat conversion efficiency of a phase-variation type recording layer.

Sawamura, as understood by applicant, proposes an optical recording medium including an opto-magnetic recording medium with a protective layer of an oxide-nitride mixture on either one side or both sides of the optical recording layer. Sawamura proposes as examples of the nitride-oxide mixture a mixture of AlN and Al_2O_3, one of Si_3N_4 and SiO, and one of Si_3N_4 and SiO_2. In addition, Sawamura proposes a mixture layer 2 as a primer layer comprising Si_3N_4 and SiO_2 in weight proportions of 6:4.

Sawamura, like the other cited references, does not disclose or suggest (or otherwise render obvious), however, a first protection layer comprising SiO_2 as the basic material, and a compound having a thermal conductivity greater than or equal to 10 W/m.deg when in a bulk state and ***comprising one or more of the compounds selected from the group consisting of zinc oxide in a molar ratio with the basic material of 3% to 50% zinc oxide, titanium oxide in a molar ratio with the basic material of 10% to 98% titanium oxide, magnesium oxide in a molar ratio with the basic material of 3% to 45% magnesium oxide, yttrium oxide in a molar ratio with the basic material of 10% to 80% yttrium oxide, gallium nitride in a molar ratio with the basic material of 1% to 30% gallium nitride, silicon carbide in a molar ratio with the basic***

material of 5% to 50% silicon carbide, and titanium carbide in a molar ratio with the basic material of 10% to 85% titanium carbide, wherein the first protection layer is configured to have a thermal conductivity matching a light-to-heat conversion efficiency of the phase-variation type recording layer, as proposed by the subject matter of independent claim 16 of the present application.

Accordingly, applicant submits that the cited references simply do not render obvious an optical phase variation type data recording medium including comprising a first protection layer comprising SiO_2 as the basic material, and a compound having a thermal conductivity greater than or equal to 10 W/m.deg when in a bulk state and ***comprising one or more of the compounds selected from the group consisting of zinc oxide in a molar ratio with the basic material of 3% to 50% zinc oxide, titanium oxide in a molar ratio with the basic material of 10% to 98% titanium oxide, magnesium oxide in a molar ratio with the basic material of 3% to 45% magnesium oxide, yttrium oxide in a molar ratio with the basic material of 10% to 80% yttrium oxide, gallium nitride in a molar ratio with the basic material of 1% to 30% gallium nitride, silicon carbide in a molar ratio with the basic material of 5% to 50% silicon carbide, and titanium carbide in a molar ratio with the basic material of 10% to 85% titanium carbide, wherein the first protection layer is configured to have a thermal conductivity matching a light-to-heat conversion efficiency of the phase-variation type recording layer***, as proposed by the subject matter of independent claim 16 of the present application.

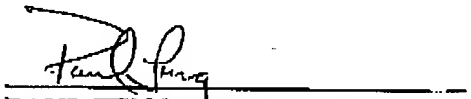
Applicant respectfully submits that independent claim 16 and the claims depending therefrom are patentable over the cited art.

In view of the remarks hereinabove, Applicant submits that the application is now in condition for allowance, and earnestly solicits the allowance of this application.

If a petition for an extension of time is required to make this response timely, this paper should be considered to be such petition. The Office is hereby authorized to charge any fees that are required in connection with this amendment and to credit any overpayment to our Deposit Account No. 03-3125.

If a telephone interview could advance the prosecution of this application, the Examiner is respectfully requested to call the undersigned attorney.

Respectfully submitted



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